



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/522,571	08/29/2005	Eric Appelman	118989-05010505	8780
20583	7550	08/17/2009	EXAMINER	
JONES DAY 222 EAST 41ST ST NEW YORK, NY 10017			MC CULLEY, MEGAN CASSANDRA	
			ART UNIT	PAPER NUMBER
			1796	
			MAIL DATE	DELIVERY MODE
			08/17/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/522,571

Applicant(s)

APPELMAN ET AL.

Examiner

Megan McCulley

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 May 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-12,14-24,26-31,33,35-40 and 45-56 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-12,14-24,26-31,33,35-40 and 45-56 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsman's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 5/20/2009
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 6, 46-48 and 51-54 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 2 are unclear since it is indefinite which of the polyesters of the impact modifier alternatives have to have the polyol residue and dimer diol limitations. Several polyesters are named, such as a polyesteramide, a copolymer formed from a polyester and polyamide, or a polyurethane formed from a polyester.

Claim 46 is unclear with regards to the *polyol residue component*. The "consisting essentially of" language is used but there is no "and" to indicate when the list of required polyol residue components stops and the rest of the claimed components begin. If it is the intention of the applicant that each of the polyol residues listed is required in the claim, then it is suggested that an "and" be inserted before 1,4-cyclohexane-dimethanol. However, this would render claim 52, which depends from claim 46, indefinite since the polyol residue can be selected from a shorter list. Therefore, for the purpose of further consideration, it is taken that the list of polyol residues are alternative choices. Proper claim language could include "polyol residues selected from the group consisting of pentaerythritol....and 1,4-cyclohexane-dimethanol."

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 6, 47 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulhaupt et al. (U.S. Pat. 4,952,645) in view of Groff (U.S. Pat. 3,576,903).

Regarding claims 1, 6, 47, and 53: Mulhaupt et al. teaches a heat-curable (col. 13 lines 52-61) composition comprising an epoxy resin (col. 3 lines 18-25, formula VI) and a polymeric impact modifier comprising a dimer fatty acid residue (col. 5 lines 15-17) and the polyol ethylene glycol (col. 6 lines 49-56), which has a molar mass of 62. For the purposes of searching for and applying prior art under 35 U.S.C. 102 and 103, absent a clear indication in the specification or claims of what the basic and novel characteristics actually are, "consisting essentially of" will be construed as equivalent to "comprising." See, e.g., PPG, 156 F.3d at 1355, 48 USPQ2d at 1355 and MPEP 2111.03. While Mulhaupt et al. does not directly teach that the composition is capable of phase separation upon curing to form phase-separated domains and/or particles comprising the impact modifier, since all of the components are present in the composition and it is cured in the same manner as the instant application, it is implicit that the composition would have this property. If it is applicants' position that this would not be the case: (1) evidence would need to be presented to support applicants' position; and (2) it would be the Office's position that the application contains

inadequate disclosure that there is no teaching as to how to obtain a composition with this property.

Mulhaupt et al. does not teach the impact modifier is a polyamide, a polyurethane, a polyesteramide, a copolymer formed from a polyester and a polyamide, or a polyurethane formed from a polyester. However, Groff teaches a similar composition comprising a copolymer of an ester and an amide (col. 1 lines 65-72). Mulhaupt et al. and Groff are analogous art since they are both concerned with the same field of endeavor, namely epoxy resin coatings. At the time of the invention a person having ordinary skill in the art would have found it obvious to combine the copolymer of an ester and an amide of Groff with the composition of Mulhaupt et al. and would have been motivated to do so for such desirable properties as high heat resistance and high solvent resistance, as evidenced by Groff (col. 2 lines 40-50).

Claims 2, 48, and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulhaupt et al. (U.S. Pat. 4,952,645) in view of Groff (U.S. Pat. 3,576,903).

Regarding claims 2, 48 and 54: Mulhaupt et al. teaches a cured composition (col. 13 lines 52-61) comprising a reaction product of an epoxy and an impact modifier/polyester (col. 12 lines 63-67), the impact modifier comprising a dimer fatty acid (col. 5 lines 15-17) and the polyol ethylene glycol (col. 6 lines 49-56), which has a molar mass of 62. For the purposes of searching for and applying prior art under 35 U.S.C. 102 and 103, absent a clear indication in the specification or claims of what the basic and novel characteristics actually are, "consisting essentially of" will be construed as

equivalent to "comprising." See, e.g., PPG, 156 F.3d at 1355, 48 USPQ2d at 1355 and MPEP 2111.03. While Mulhaupt et al. does not directly teach the phase-separated domains and/or particles comprising the impact modifier, the cured product is made by the same method as the instant composition, and would therefore implicitly form the phase-separated domains and/or particles; the method comprising the steps of (a) prepolymer formation/epoxy-impact modifier adduct formation (col. 12 lines 63-67), (b) epoxy resin composition formation/adding epoxy to the adduct (col. 13 lines 11-15), (c) film formation (col. 13 lines 20-22) and (d) cured under pressure (col. 13 line 30) of at least 10 tons per square foot. If it is applicants' position that this method would not inherently form the domains and/or particles: (1) evidence would need to be presented to support applicants' position; and (2) it would be the Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain a composition with this property.

Mulhaupt et al. does not teach the impact modifier is a polyamide, a polyurethane, a polyesteramide, a copolymer formed from a polyester and a polyamide, or a polyurethane formed from a polyester. However, Groff teaches a similar composition comprising a copolymer of an ester and an amide (col. 1 lines 65-72). Mulhaupt et al. and Groff are analogous art since they are both concerned with the same field of endeavor, namely epoxy resin coatings. At the time of the invention a person having ordinary skill in the art would have found it obvious to combine the copolymer of an ester and an amide of Groff with the composition of Mulhaupt et al. and

would have been motivated to do so for such desirable properties as high heat resistance and high solvent resistance, as evidenced by Groff (col. 2 lines 40-50).

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mulhaupt et al. (U.S. Pat. 4,952,645).

Regarding claim 20: Mulhaupt et al. teaches a prepolymer/adduct which is the reaction product of an epoxy and an impact modifier/polyester (col. 12 lines 63-67) with the impact modifier/polyester in an amount of 40% or 50% and the epoxy in an amount of 50% or 60% (Table top of col. 13). Mulhaupt et al. teaches that in formula 1, all of the radicals R^1 and R^3 can be derived from dimeric or trimeric fatty acids, and it is particularly preferred for R^1 to be a trimeric fatty acid (col. 7 lines 40-50). There are twice as many R^1 moieties as R^3 , there is 33% dimeric fatty diol residue. For the purposes of searching for and applying prior art under 35 U.S.C. 102 and 103, absent a clear indication in the specification or claims of what the basic and novel characteristics actually are, "consisting essentially of" will be construed as equivalent to "comprising." See, e.g., PPG, 156 F.3d at 1355, 48 USPQ2d at 1355 and MPEP 2111.03.

Claims 31, 5, 7-12, 26, 28-30, 35-37, and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulhaupt et al. (U.S. Pat. 4,952,645).

Regarding claims 31, 55: Mulhaupt et al. teaches a heat-curable (col. 13 lines 52-61) composition comprising an epoxy resin (col. 3 lines 18-25, formula VI) and a polymeric impact modifier comprising a dimer fatty acid (col. 5 lines 15-17) and the

polyol ethylene glycol (col. 6 lines 49-56), which has a molar mass of 62. For the purposes of searching for and applying prior art under 35 U.S.C. 102 and 103, absent a clear indication in the specification or claims of what the basic and novel characteristics actually are, "consisting essentially of" will be construed as equivalent to "comprising." See, e.g., PPG, 156 F.3d at 1355, 48 USPQ2d at 1355 and MPEP 2111.03. While Mulhaupt et al. does not directly teach that the composition is capable of phase separation upon curing to form phase-separated domains and/or particles comprising the impact modifier, since all of the components are present in the composition and it is cured in the same manner as the instant application, it is implicit that the composition would have this property. If it is applicants' position that this would not be the case: (1) evidence would need to be presented to support applicants' position; and (2) it would be the Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain a composition with this property.

Regarding claim 5: Mulhaupt et al. teaches the polyester comprises both dimer fatty acids and other dicarboxylic acids (col. 5 lines 15-68), in particular adipic acid (col. 5 line 47) where the aliphatic radical is tetramethylene. The preferred diol is butanediol, MW = 90 (col. 6 lines 52-55).

Regarding claim 7: Mulhaupt et al. teaches that in formula 1, all of the radicals R^1 and R^3 can be derived from dimeric or trimeric fatty acids, and it is particularly preferred for R^1 to be a trimeric fatty acid (col. 7 lines 40-50). There are twice as many R^1 moieties as R^3 , there is 33% dimeric fatty diol residue.

Regarding claims 8-10: Mulhaupt et al. teaches the composition contains 100g of epoxy and 16.6 g of the impact modifier (col. 13 lines 11-13), which is calculated to a ratio of 6:1 epoxy to impact modifier. The polyester component is between 1 and 25% by weight (col. 9 lines 30-35). The fatty acid component would then be between 0.7% and 17.5% by weight if it is 70% of the polyester (col. 3 lines 19-22).

Regarding claims 11, 12: Mulhaupt et al. teaches reacting an epoxy with 40 or 50% of the impact modifier (col. 12 lines 60-65) and reacting that with an epoxy resin (col. 13 lines 1-15).

Regarding claim 26: Mulhaupt et al. teaches a heat-curable (col. 13 lines 52-61) adhesive (col. 10 lines 46-55) composition comprising an epoxy resin (col. 3 lines 18-25, formula VI) and a polymeric impact modifier comprising a dimer fatty acid (col. 5 lines 15-17).

Regarding claims 28 and 29: Mulhaupt et al. teaches reacting an epoxy with 40 or 50% of the impact modifier (col. 12 lines 60-65) and reacting that with an epoxy resin (col. 13 lines 1-15). Further, the impact modifier/polyester is taught being made with propylene oxide MW = 58 (col. 6 lines 44-48) and then mixed with diglycidyl ether based on bisphenol A (col. 13 lines 11-15), which has a molecular weight of 274 in its simplest form.

Regarding claim 30: Mulhaupt et al. teaches a method comprising curing an epoxy resin composition that had been placed between surfaces/curing a laminate (col. 13 lines 1-30).

Regarding claims 35-37: Mulhaupt et al. teaches a heat-curable (col. 13 lines 52-61) composition comprising an epoxy resin (col. 3 lines 18-25, formula VI) and a polymeric impact modifier comprising a dimer fatty acid (col. 5 lines 15-17) and the polyol neopentyl glycol (col. 6 lines 49-56).

Claims 33, 14-19, 21-24, 38-40, and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulhaupt et al. (U.S. Pat. 4,952,645).

Regarding claim 33, 14-17, 38-40, 56: Mulhaupt et al. teaches a cured composition (col. 13 lines 52-61) comprising a reaction product of an epoxy and an impact modifier/polyester (col. 12 lines 63-67), the impact modifier comprising a dimer fatty acid (col. 5 lines 15-17) and the polyol neopentyl glycol (col. 6 lines 49-56), which has a molecular weight of 104 and no ether linkages. For the purposes of searching for and applying prior art under 35 U.S.C. 102 and 103, absent a clear indication in the specification or claims of what the basic and novel characteristics actually are, "consisting essentially of" will be construed as equivalent to "comprising." See, e.g., PPG, 156 F.3d at 1355, 48 USPQ2d at 1355 and MPEP 2111.03. While Mulhaupt et al. does not directly teach the phase-separated domains and/or particles comprising the impact modifier, the cured product is made by the same method as the instant composition, and would therefore inherently form the phase-separated domains and/or particles; the method comprising the steps of (a) prepolymer formation/epoxy-impact modifier adduct formation (col. 12 lines 63-67), (b) epoxy resin composition formation/adding epoxy to the adduct (col. 13 lines 11-15), (c) film formation (col. 13

lines 20-22) and (d) cured under pressure (col. 13 line 30) of at least 10 tons per square foot. If it is applicants' position that this method would not inherently form the domains and/or particles: (1) evidence would need to be presented to support applicants' position; and (2) it would be the Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain a composition with this property. Since the method it is the same, it would also form particles with a diameter in the range of 0.4 to 7 microns, have an aspect ratio in the range from 0.6 to 1.4:1, have less than 25% particles with a diameter less than 0.5 microns, and have less than 20% particles with a diameter greater than 5 microns.

Regarding claims 18 and 19: Physical properties of the composition are implicit in the composition as claimed. The Office recognizes that all of the claimed effects and physical properties are not positively stated by the reference. Note however, that the reference teaches all of the claimed ingredients, process steps and process conditions and thus, the claimed effects and physical properties would implicitly be achieved by carrying out the disclosed process. If it is the applicant's position that this would not be the case: (1) evidence would need to be presented to support applicant's position; and (2) it would be the Office's position that the application contains inadequate disclosure in that there is no teaching as to how to obtain the claimed properties and effects by carrying out only these steps.

Regarding claims 21-24: Mulhaupt et al. teaches a cured composition (col. 13 lines 52-61) comprising a reaction product of an epoxy and an impact modifier/polyester (col. 12 lines 63-67), the impact modifier comprising a dimer fatty acid (col. 5 lines 15-

17). While Mulhaupt et al. does not directly teach the phase-separated domains and/or particles comprising the impact modifier, the cured product is made by the same method as the instant composition, and would therefore inherently form the phase-separated domains and/or particles; the method comprising the steps of (a) prepolymer formation/epoxy-impact modifier adduct formation (col. 12 lines 63-67), (b) epoxy resin composition formation/adding epoxy to the adduct (col. 13 lines 11-15), (c) film formation (col. 13 lines 20-22) and (d) cured under pressure (col. 13 line 30) of at least 10 tons per square foot. If it is applicants' position that this method would not inherently form the domains and/or particles: (1) evidence would need to be presented to support applicants' position; and (2) it would be the Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain a composition with this property. Since the method it is the same, it would also form particles with at least 60% of the particles have diameter in the range of 0.8 to 5 microns, have an aspect ratio in the range from 0.7 to 1.3:1, have less than 25% particles with a diameter less than 0.5 microns, and have less than 20% particles with a diameter greater than 5 microns.

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mulhaupt et al. (U.S. Pat. 4,952,645) as applied to claim 33 above and in view of Welke et al. (EP 1 026 218).

Regarding claim 27: Mulhaupt et al. teaches the epoxy adhesive used as a laminating resin (col. 10 line 53) comprising the basic claimed composition as set forth

above. Mulhaupt et al. does not teach using the epoxy resin as an adhesive specifically for bonding electronic components to circuit boards. However, Welke et al. teaches the composition is used in the electronics industry to bond electronic components to substrates (para. 74) which is a laminating process. Mulhaupt et al. and Welke et al. are analogous art since they both are from the same field of endeavor, namely epoxy/polyester resin compositions. At the time of the invention a person having ordinary skill in the art would have found it obvious to combine the teaching of Welke et al. with the composition of Mulhaupt et al. and would have been motivated to do so to extend the range of applications of the resin composition.

Claims 45, 49 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulhaupt et al. (U.S. Pat. 4,952,645).

Regarding claim 45: Mulhaupt et al. teaches a heat-curable (col. 13 lines 52-61) composition comprising an epoxy resin (col. 3 lines 18-25, formula VI) and a polymeric impact modifier comprising a dimer fatty acid residue (col. 5 lines 15-17) and a non-dimer fatty acid residue such as ethylene glycol in an amount of 30% (col. 6 lines 40-45). While Mulhaupt et al. does not directly teach that the composition is capable of phase separation upon curing to form phase-separated domains and/or particles comprising the impact modifier, since all of the components are present in the composition and it is cured in the same manner as the instant application, it is implicit that the composition would have this property. If it is applicants' position that this would not be the case: (1) evidence would need to be presented to support applicants'

position; and (2) it would be the Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain a composition with this property.

Regarding claim 49: Mulhaupt et al. teaches the polyester comprises both dimer fatty acids and other dicarboxylic acids (col. 5 lines 15-68), in particular adipic acid (col. 5 line 47) where the aliphatic radical is tetramethylene. The preferred diol is butanediol, MW = 90 (col. 6 lines 52-55).

Regarding claim 50: Mulhaupt et al. teaches the polyol neopentyl glycol (col. 6 lines 49-56).

Claims 46, 51, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulhaupt et al. (U.S. Pat. 4,952,645).

Regarding claim 46, 51 and 52: Mulhaupt et al. teaches a heat-curable (col. 13 lines 52-61) composition comprising an epoxy resin (col. 3 lines 18-25, formula VI) and a polymeric impact modifier comprising a polyester comprising both dimer fatty acids and other dicarboxylic acids (col. 5 lines 15-68), in particular adipic acid (col. 5 line 47). The polyol neopentyl glycol is also disclosed (col. 6 lines 49-56). While Mulhaupt et al. does not directly teach that the composition is capable of phase separation upon curing to form phase-separated domains and/or particles comprising the impact modifier, since all of the components are present in the composition and it is cured in the same manner as the instant application, it is implicit that the composition would have this property. If it is applicants' position that this would not be the case: (1) evidence would need to be

presented to support applicants' position; and (2) it would be the Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain a composition with this property.

Response to Arguments

Applicant's arguments filed May 20, 2009 have been fully considered but they are not persuasive, because:

A) Applicant's argument that the cited reference Ratna et al. shows the differences between the claimed invention and the disclosure of Mulhaupt et al. and the alleged inability of the composition of Mulhaupt et al. to form phase separated domains or particles is not persuasive. There is no evidence in this reference that the composition of U.S. Pat. 4,952,645 is unable to achieve this property since this reference is not mentioned. One reference (90) is also written by the inventor Mulhaupt, but Ratna et al. discloses that the impact modifier in this disclosed system was not investigated (pg. 1665).

B) Applicant's argument that Mulhaupt et al. requires a higher molecular weight polyol is not persuasive. For the purposes of searching for and applying prior art under 35 U.S.C. 102 and 103, absent a clear indication in the specification or claims of what the basic and novel characteristics actually are, "consisting essentially of" will be construed as equivalent to "comprising." See, e.g., PPG, 156 F.3d at 1355, 48 USPQ2d at 1355 and MPEP 2111.03. Since there is no guidance found in the specification or claims as to what the phrase "consisting essentially of" excludes, and no evidence is

provided that these higher molecular weight polyols would be detrimental to the composition, the claim is construed as equivalent to "comprising".

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Megan McCulley whose telephone number is (571)270-3292. The examiner can normally be reached on Monday - Thursday 7:30-6:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571) 272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/
Supervisory Patent Examiner, Art Unit 1796

/M. M./
Examiner, Art Unit 1796